REMARKS

The specification and abstract have been amended to correct wording and grammatical errors. No new matter has been added.

Claims 1-15 are active in the application. Claims 1, 5, 8, 11 and 14 have been amended. Claim 1 has been amended to make it clearer and to require that the developer unit contains toner. This amendment is supported by the specification at page 14 line 31 through page 15, line 5, page 19, lines 10-11, and page 18, lines 6-7. Also, claim 1 has been amended to require that the data processor can detect the switch settings indicating the type of toner contained in the developer unit. This amendment is supported by the specification at page 17 lines 10-25, page 20, lines 16-19 and page 18, lines 6-11. Similarly, claim 8 has been amended to make it clearer and to require that the printer include a means for communicating to the data processor data indicating a type of toner loaded in the printer. This amendment is supported by the specification at page 17 lines 10-25, page 20, lines 16-19 and page 18, lines 6-11. Claim 14 has been amended to make it clearer and to require that the data stored in the printer identify the toner type. This amendment is supported by the specification at page 17 lines 10-25. The amendments to claims 5 and 11 do not change the scope of the claims, and are supported by text at page 18, line 30 through page 19, line 2.

In the prior art, printing errors are commonly caused by accidentally printing documents with the wrong kind of toner. This can happen if the toner (or developer unit containing toner) is changed without updating the change in the computer controlling the printer. Toners can have different colors, or different magnetic properties, or other features that are necessarily selected for a particular application. So, a costly error will result if toner having the wrong color is installed into a printer without updating the change in the system. Using toner with the wrong color, or wrong magnetic properties will result in an unusable product.

By comparison, the present invention provides a printing system that prevents errors caused by improper toner identification. The present printing system comprises a data processor that controls one or more printers. Each printer can be loaded with one or more developer units that contain toner (i.e. ink). The developer units are removable and

replaceable. In the present invention, the printer or developer unit includes switches indicating a type of toner contained in the developer unit. Significantly, the switch settings, and therefore the type of loaded toner, can be detected by a remote data processor that controls the printer. The remote data processor can therefore be used to prevent printing with improper toner, and can detect when toner has been changed. In a preferred embodiment of the invention, the switches are attached to the developer unit, thereby allowing the data processor to automatically detect when a developer unit and toner have been changed. By allowing automated or semi-automated detection of a change in toner, the present invention greatly reduces the incidence of errors caused by printing with an incorrect toner.

Claims 14 and 15 were rejected under 35 USC 102(e) as being anticipated by US patent 6,290,322 to Noguchi. This rejection is traversed.

Claim 14, as amended, requires the step of "storing in said printer data identifying said toner". Noguchi does not meet this limitation at col. 4, lines 19-32 (as asserted in the Office Action) or anywhere else. Col. 4 lines 19-32 and Fig. 3 teach a ROM 1702 and a DRAM 1703. However, Noguchi teaches that the ROM stores a "control program to be executed by the MPU" (line 25), and teaches that the DRAM stores various data such as the recording signal and record data to be supplied to the record head. Noguchi does not teach or suggest that the printer stores data identifying a type of toner loaded in the printer, as required by claim 14. Hence, the rejection of claim 14 must be withdrawn.

Also, it is noted that Noguchi does not teach or suggest the step of "communicating said data identifying the toner to a supporting processor". The Office Action argues that this step is described in col. 7, lines 29-32. This is incorrect. Lines 29-32 teach that the recording mode can be selected from the operator control panel. Selecting a recording mode (e.g. color or B&W) is different from sending toner identification data to the supporting processor. In the present communicating step, the printer informs the supporting processor which toner types are available for printing. In Noguchi col. 7, lines 29-32, the operator selects which printing mode is desired. Nowhere does Noguchi teach or suggest the step of communicating to a processor or computer which toner types are installed and available in a printer. Accordingly, the rejection of claim 14 must be withdrawn for this additional reason.

Regarding claim 15, the switch of Noguchi does not store data identifying a type of toner, as required by the reference to the "storing step". Instead, the switch 106 of Noguchi is for "setting the recording modes" (e.g. color or B&W). Hence, the switch of Noguchi does not store data indicating a type of toner, and in fact, the switch of Noguchi does not store any kind of data at all. The switch 106 of Noguchi is distinct from the switch of claim 15 and therefore the rejection of claim 15 must be withdrawn.

Claims 1-13 were rejected under 35 UC 103(a) as being unpatentable over Noguchi in view of US Patent 4,958,192. This rejection is traversed.

Claim 1, as amended, requires a switch that is settable to store data indicating a type of toner contained in the developer unit. Similarly, claim 8 requires a means for storing data indicating a type of toner loaded in the printer.

The switch of Noguchi does not correspond to the switch of present claim 1. In the present invention, the switch is settable to a state that indicates the type of toner contained in the developer unit. The switch effectively functions as a memory that stores data indicating the type of toner contained in the developer unit.

Noguchi, by comparison, teaches (e.g. in col. 3, lines 33-40 and col. 6, lines 64-66) an operator interface that can be used to select an operating mode for the printer (e.g. color or B&W). The settings discussed in Noguchi are operator-defined and function to control the operation of the printer. The settings control or switches of Noguchi have a completely different function compared to the switches of the present invention. The settings of Noguchi do not indicate or identify a toner type or any other kind of ink available on the printer. Wholly absent from Noguchi is any teaching or suggestion to store on the printer data indicating a type of toner available on the printer or contained in the developer unit. Further, the Examiner has not relied on Kusomoto as showing these features (because these features are not found in Kusomoto). As such, no combination of Noguchi and Kusomoto would make the claimed invention obvious. Accordingly, the rejections of claims 1 and 8 are improper and must be withdrawn.

Additionally, claim 1 requires that a supporting data processor can detect the settings of the switch, and thereby detect the type of toner loaded in the printer. Similarly, claim 8 requires that the printer include a means for communicating to the data processor data indicating a type of toner loaded in the printer. In this way, the data processor can

remotely determine the type of toner that is available in the printer, and route printing tasks accordingly.

The Office Action argues that Noguchi teaches a feedback link at 20 in Fig. 1. While the host computer 20 of Fig. 1 communicates with the printer via bus 16, Noguchi fails to teach or suggest that the host computer 20 (or any other data processor separate from the printer) can receive information regarding the identification of the type of toner available in the printer. Nowhere does Noguchi teach or suggest that the printer communicates, or the processor detects information regarding, the types of toners available for printing, as required by claims 1 and 8. Accordingly, the rejection of claims 1 and 8 must be withdrawn for this additional reason.

Regarding Kusumoto, it is well known to use developer units in printing systems. Kusumoto does teach a developer unit, as correctly noted in the Office Action. Kusumoto does teach that the developer unit can contain magnets for activating reed relays to indicate the type of toner present in the developer unit. However, Kusumoto, like Noguchi, fails to teach that the data indicating the type of toner can be communicated to or detected by a data processor. Claim 1 requires a communication path to a supporting data processor that allows the data processor to detect settings of the switches and hence the type of toner. Similarly, claim 8 requires that the printer has means for communicating the data processor data indicating the type of toner loaded in the printer. Both Noguchi and Kusumoto fail to teach either of these features. Accordingly, no conceivable combination of Noguchi and Kusumoto could possibly produce the present invention as claimed in claim 1 or claim 8 as amended. Any possible combination of Noguchi and Kusumoto will necessarily not be able to communicate to a data processor the type of toner contained in the developer unit or printer.

Regarding claims 4 and 10, neither Noguchi nor Kusumoto teach or suggest that developer features can be enabled or disabled depending on the settings of the switches on the developer unit or data indicating a type of toner.

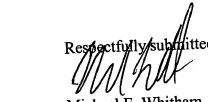
Regarding claims 5 and 11, neither Noguchi nor Kusumoto teach or suggest that switches indicating a type of toner in the developer unit can be attached to the developer unit.

In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 1-15 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees for the petition or for entry of this amendment to Attorney's Deposit Account No. 50-0563 (International Business Machines Corporation).

Respectfully submitted,



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